Amendments to Claims

1. (Currently amended) A process for producing titanium dioxide nanopowder, comprising:

(a) reacting titanium tetrachloride and an oxygen containing gas in the vapor phase in a flame reactor, at a flame temperature of at least about 800°C, ~~a pressure ranging from about 35 to about 172 kPa~~ in the presence of (i) water vapor in an amount ranging from about 1000 to about 50,000 parts per million, based on the weight of titanium dioxide under production, (ii) a diluent gas in an amount greater than about 100 mole percent based on the titanium tetrachloride and oxygen containing gas and (iii) a nucleant consisting essentially of a cesium substance wherein the cesium substance is present in an amount ranging from about 10 to about 5000 parts per million, based on the weight of the titanium dioxide under production, the pressure of reaction being sufficient to form titanium dioxide nanopowder, and

(b) recovering the titanium dioxide nanopowder having a surface area in the range of about 30 to about 300 m^2/g and wherein about 50 volume percent of the particles have a diameter of about 80 nm or less and wherein about 90 volume percent of the particles have a diameter of about 100 nm or less.

2. (Original) The process of claim 1 in which the cesium substance is present in an amount ranging from about 50 to about 1000 parts per million.

3. (Original) The process of claim 1 in which the temperature is in the range of about 800 to about 1800 °C.

4. Cancelled.

5. (Currently amended) The process of claim 1 in which the titanium tetrachloride and the oxygen containing gas are reacted in a reaction zone in which the titanium tetrachloride and the diluent are ~~is~~ introduced into the reaction zone in a mixture.

6. (Original) The process of claim 1 in which the diluent is recycle gas.

7. (Original) The process of claim 1 in which the flame reactor further comprises a means for increasing heat transfer.

8. (Original) The process of claim 1 in which the cesium substance is a cesium halide or salt of an organic acid.

9. (Original) The process of claim 1 in which the residence time for reacting the titanium tetrachloride and the oxygen containing gas ranges from about 5 to about 40 milliseconds.

10. (Original) The process of claim 1 in which the titanium dioxide is predominantly in the anatase crystalline form.

11. (New) The process of claim 1 in which the pressure of reaction ranges from about 0 to about 172 kPa.

12. (New) The process of claim 1 in which the pressure of reaction ranges from about 0 to about 138 kPa.